## 5.15 UTILITIES AND SERVICE SYSTEMS

The proposed project would require the extension of utility services to the project site in order to meet the demands of the proposed 307 residential units. This section describes existing water, sewer, storm drain, electrical, and natural gas service in the area and the impact of proposed project on these existing services.

The proposal also includes the annexation of an adjacent 26.4-acre area consisting of six parcels owned by various property owners, with four of the lots occupied. A land use proposal has not been submitted for this 26.4-acre area and it is not owned or otherwise under the control of the applicant. For these reasons, no development is expected to occur on these parcels.

**Alternative (Overhead Electric Lines) Development Plan**

The Spring Trails project assumes that the Southern California Edison (SCE) overhead electric lines that traverse the western portion of the site will be located underground. In the event that the overhead electric lines cannot be located underground, an alternative plan accommodating the lines above ground, as shown in Chapter 3, *Project Description*, Figure 3-3A*, Alternative (Overhead Electric Lines) Development Plan,* is proposed for the project site. The alternative plan for Spring Trails is the same as the preferred plan in every respect except for the treatment of the land beneath the aboveground electric lines and the number of residential lots. The alternative plan contains 304 single-family detached units compared to 307 units proposed in the preferred development plan. Impacts to water, sewer, and solid waste services associated with implementation of the preferred development plan and the SCE alternative development plan are analyzed in this section.

The proposal also includes the annexation of an adjacent 26.4-acre area consisting of six parcels owned by various property owners, with four of the lots occupied. A land use proposal has not been submitted for this 26.4-acre area and it is not owned or otherwise under the control of the applicant. For these reasons, no development is expected to occur on these parcels.

### 5.15.1 Water Services

#### 5.15.1.1 Environmental Setting

**San Bernardino Municipal Water Department**

Potable and recycled water would be supplied to the proposed project site by the City of San Bernardino Municipal Water Department (SBMWD). Residences in the 26.4 acre annexation area currently obtain potable water through onsite wells. Upon annexation into the City of San Bernardino, these residences would continue to obtain potable water through onsite wells. In the future water supply infrastructure may be extended into the 26.4 acre annexation area by SBMWD.

SBMWD obtains water mainly from the Bunker Hill Groundwater (BHG) Basin, also known as the San Bernardino Basin area, and provides service to the City of San Bernardino and surrounding unincorporated areas (SBMWD 2005; SBVMWD 2009a). SBMWD has a service area of 45 square miles, 151,000 customers, 551 miles of pipeline, 4,000 fire hydrants, 4 treatment plants, 32 storage facilities with a combined capacity of 100 million gallons, 27 chlorinated facilities, and 66 booster pumps. The service area covers portions of the City of San Bernardino and outlying undeveloped areas, including parkland and flood protection areas. Population within the service area is expected to increase from 173,359 in 2005 to 186,454 in 2030 (SBMWD 2005).

The main planning document used by SBMWD to guide infrastructure planning and water supply decision-making is the Urban Water Management Plan (UWMP). SBMWD is required by the Urban Water Management Planning Act to develop a UWMP that is to be updated every five years. The most recent UWMP was released in 2005 and provides guidance for the planning period between 2000 and 2020. At the time this DEIR was written, the 2010 UWMP was being finalized.

The Municipal Water District Act requires SBMWD to coordinate with other water utility agencies in the San Bernardino Valley. This coordination is managed by the San Bernardino Valley Municipal Water District (SBVMWD), a State Water Project contractor for the San Bernardino Valley. SBMWD must coordinate its plans with SBVMWD with respect to groundwater management issues. SBMWD also has an agreement with SBVMWD for delivering treatment plant discharges to the Santa Ana River to satisfy water rights of downstream users.

Furthermore, water utility agencies and cities in the Upper Santa Ana River Watershed region, within which San Bernardino lies, have jointly agreed to prepare an integrated regional water management plan (IRWMP). SBVMWD is the lead agency in this planning effort. This effort began in 2005 and has not yet been completed (SBVMWD 2009b). The main purpose of this report are to develop a process for managing the use of water in the San Bernardino Valley and to recognize regional projects that would be eligible to receive federal or state funding.

## Water Distribution Systems

### *Potable Water Distribution System*

Groundwater is pulled from the BHG Basin through 57 wells, ranging from 50 to 1,300 feet in depth. Water is pumped from these wells at rates that range from 50 to 3,500 gallons per minute (SBMWD 2005). The water is distributed throughout the service area through a system consisting of pipelines, storage reservoirs, pumping stations, hydroelectric generating stations, manual and automatic control valves, fire hydrants, and water meters throughout 19 individual pressure zones. Pressure zones are at elevations of 1,249 to 2,100 feet above mean sea level feet. The groundwater wells can reach a maximum daily demand of 90 million gallons per day (mgd).

There are three reservoirs near the project site: the Meyers Canyon Reservoir in the 2,100-foot pressure zone, the Cajon Reservoir in the 1,916-foot pressure zone, and the Palm Avenue Reservoir in the 1,720-foot pressure zone, all in the northern portion of the community of Verdemont. SBMWD has been expanding water supply service in the Verdemont area, including a new reservoir near the Meyers Canyon Reservoir, pumping stations, and waterlines in the 1,916-, 2,100-, and proposed 2,300-foot pressure zones.

Spring Trails lies in the proposed 3,000-, 2,700-, and 2,500-foot pressure zones. To the southeast is the proposed 2,300-foot pressure zone and to the south is the 2,100-foot pressure zone, as shown in Figure 3-10, *Conceptual Water Plan, Area*, in Chapter 3, *Project Description*. An existing 16-inch water line in the 2,100-foot pressure zone runs in the Meyers Road alignment near the proposed project site to Little League Drive. At this point, it is reduced to a 12-inch line and connects to a 24-inch water line in Magnolia Avenue. In Magnolia Avenue, this 24-inch water line runs both north to the Meyers Canyon Reservoir in the 2,100-foot pressure zone and south to connect to the Cajon and Palm Avenue Reservoirs. A 24-inch water line connects the Cajon and Palm Avenue Reservoirs in the 1,916-foot pressure zone. These water lines are also shown in Figure 3-10. Pumping stations are at the Palm Avenue Reservoir, at the intersection of Magnolia Avenue and Irvington Avenue, on Belmont Avenue between Little League Drive and Magnolia Avenue, and on Little League Drive north of I-215. Existing water infrastructure is shown in Table 5.15-1.

**Table 5.15-1**
**Existing Water Infrastructure near the Proposed Project Site**

| Reservoirs | Location |
|---|---|
| Meyers Canyon Reservoir (2.0 million gallons) | ½ mile northeast of Meyers Road at the terminus of Perrin Road (in proposed 2300 Zone, supplies for 2100 Zone) |
| Cajon Reservoir (5.0 million gallons) | 500 feet south of the junction of Kendall Avenue and Cajon Boulevard (1916 Zone) |
| Palm Avenue Reservoir (5.325 million gallons) | 630 feet southwest of Palm Avenue/I-215 on-ramps intersection, south of I-215 (1916 Zone) |
| **Water Lines** | **Location** |
| 16-inch water line | Meyers Road |
| 12-inch water line | Little League Drive/Belmont Avenue |
| 16-inch water line | Cajon Reservoir to Magnolia Avenue |
| 24-inch water line | Cajon Reservoir to Palm Avenue Reservoir |
| 24-inch water line | Meyers Canyon Reservoir to intersection of Cajon Boulevard and Magnolia Avenue |
| **Pumping Stations** | **Location** |
| Palm Avenue Pumping Station | Palm Avenue Reservoir (1916 Zone) |
| Magnolia Avenue Pumping Station | Magnolia Avenue and Irvington Avenue (in 1916 Zone, pumps to 2100 Zone) |
| Meyers Canyon Pumping Station | Little League Drive and the I-215 on-ramps (in 1916 zone, pumps to 2100 Zone) |

Source: Spring Trails Specific Plan; Nevarez 2009a; SBMWD 2007.

### *Recycled Water Distribution System*

SBMWD operates the 33-mgd-capacity (36,965 acre-feet per year [afy]) Margaret H. Chandler Water Reclamation Plant (WRP), which treats wastewater to secondary treatment levels. This allows it to meet National Pollution Discharge Elimination Standards, but water from this plant is not directly used as recycled water. After being treated to secondary standards, a portion of the effluent from the WRP is sent to the Rapid Infiltration Extraction (RIX) Tertiary Treatment Facility in the City of Colton. This facility has a capacity of 34 mgd (38,085 afy) and is jointly operated by the City of Colton and SBMWD, under the sole ownership of the City of San Bernardino. In 2005, the RIX facility treated about 36,948 acre-feet of wastewater. About 81.8 percent, or 30,230 acre-feet of this wastewater came from the WRP. About 16,000 afy of the treated effluent from RIX is used to maintain water flows in the Santa Ana River as part of the agreement SBVMWD has with downstream agencies. The remainder (20,948 afy) has potential for water reuse.

Recently, SBMWD has begun using recycled water from the RIX facility within its service area. Most recycled water use from the RIX facility is infeasible because of the economic costs of transporting water from the RIX facility to the service area. The RIX facility is about 300 feet lower than the lowest pressure zone (1,249 feet), and the cost to transfer water up this incline is high. However, approximately 0.75 mgd or 840 afy of water treated at RIX is now being used at the San Bernardino Municipal Golf Course and the California Department of Transportation land adjacent to Interstate 210 (I-210) (UWMP 2005).

The 2005 UWMP has determined that there is potential to increase recycled water use within the service area by about 2.25 mgd, or 2,519 afy. This would most likely require the placement of satellite reclamation and distribution facilities within the SBMWD service area.

## Water Supply

### *The BHG Basin*

The BHG Basin is the main water supply for the SBMWD. The 5-million-acre-foot BHG Basin has 1.5 million acre-feet of extractable water. It is recharged naturally through precipitation and surface water streams, as well as through the rerouting of streams into percolation basins and with imported water purchased by SBMWD. The management of water extractions from the BHG Basin is under the direction of SBVMWD. Table 5.15-2 shows the annual and cumulative change in the basin's groundwater storage since the baseline year (1934). It also shows the amount of water SBMWD has withdrawn from 2000 through June of 2009. SBMWD used 57,237 acre-feet of water in 2008 and 24,347 by June 2009 (Litchfield 2009).

***Table 5.15-2***
***Withdrawals from the BHG Basin and Cumulative Change in Groundwater Storage (in afy)***

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| **SBMWD Usage** | | | | | | | | | | |
| Amount of BHG Basin Water Used by SBMWD | 47,487 | 45,676 | 48,504 | 42,850 | 48,311 | 47,301 | 57,391 | 59,594 | 57,237 | 24,347[1] |
| Percent of Total Water Supply for SBMWD[2] | 100% | 100% | 100% | 100% | 100% | 99.5% | 97.6% | 98.5% | 99.4% | NA |
| **Change in BHG Basin** | | | | | | | | | | |
| Annual Change in BHG Basin Storage[3] | (115,824) | (71,048) | (110,929) | (29,706) | (80,017) | (223,178) | (27,539) | (88,767) | (35,158) | NA |
| Cumu-lative Change in BHG Basin Storage[3] | (134,609) | (205,657) | (316,586) | (346,292) | (426,309) | (203,131) | (230,670) | (319,437) | (354,595) | NA |

Source: 2005 UWMP; Litchfeld 2009; SBVMWD 2009a.
[1] As of June 2009.
[2] Other sources of water include recycled water from the RIX Facility and exchanges with the East Valley Water District.
[3] Indicates the change from base year (1934). Changes in groundwater levels result from changes in annual precipitation, total withdrawals from basin, and changes to natural and artificial recharge. Parentheses indicate a negative change.

#### *BHG Basin Recharge*

The BHG Basin is recharged with surface water and imported water. Surface water recharge comes from flows down the San Gabriel and San Bernardino mountains and precipitation. The San Bernardino Department of Water Conservation monitors the recharging of the BHG Basin. Average collection of rainfall and surface water to recharge the basin is 65,000 afy. Imported water is purchased by SBVMWD from the State Water Project (SWP). According to the California Department of Water Resources (CDWR), 102,600 afy of water from the SWP is contracted to SBVMWD. SBVMWD is able to use this water to recharge the BHG Basin. Drought conditions and environmental concerns with endangered species (the delta smelt) habitat preservation in the Bay Delta, however, have reduced the actual allocation amount from the SWP. For 2009, SBVMWD was allocated 41,040 afy, a 60 percent reduction (CDWR 2009a).

***Legal Cases Adjudicating Allocations and Withdrawals from the San Bernardino Basin Area***

Withdrawal allocations are primarily governed by the judgment of *Western Municipal Water District et al. v. East San Bernardino County Water District et al.* (the Western Judgment). Other judgments followed the Western Judgment, including the judgments from *City of San Bernardino v. City of Riverside, Orange County Water District v. City of Chino* (1969; Orange County Judgment), and *City of San Bernardino v. United States of America* (Consent Decree).

The Western Judgment gives SBVMWD responsibility over ensuring that water quantities are available over the basin safe yield of 167,238 afy within its jurisdictional boundaries (SBMWD 2005). The total safe yield of the BHG Basin is 232,100 afy (SBVMWD 2009a). Individual agencies within the SBVMWD service area, such as SBMWD, are not given allocations by this judgment, but the amount of water they receive from the basin is monitored by SBMVWD. The *City of San Bernardino v. City of Riverside* (1922) judgment and subsequent amendments set the maximum amount of water that can be pumped in the most prolific portion of the San Bernardino Basin and, to some extent, limits the geographic areas in which pumping may occur. The Orange County Judgment ultimately determined the amount of water (42,000 afy) to be delivered from the northern to southern portion of the Santa Ana River watershed to ensure a base flow rate. SBVMWD is responsible for 16,000 afy of this delivery, all of which comes from the RIX Facility in Colton. The Consent Decree provides judgment related to the Newmark Groundwater Contamination Superfund Site. The City of San Bernardino must develop a groundwater management plan to regulate the amount of pumping in the management area of the Newmark site as well as spreading activities.

**UWMP-Projected Supply and Demand**

***Service Area***

Supplies for potable and recycled water are estimated in the 2005 UWMP. SBMWD would have a total 73,504 afy of water from the BHG Basin and the RIX Facility by year 2025, as shown in Table 5.15-3. This supply is determined by the amount of water that would be provided by existing and planned water projects during normal weather conditions.

***Table 5.15-3***
***Projected Water Supplies for SBMWD (Normal Year) without Project (afy)***

| Supply Source | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|
| BHG Basin | 53,940 | 61,039 | 66,850 | 72,664 |
| RIX Facility | 840 | 840 | 840 | 840 |
| **Total** | **54,780** | **61,879** | **67,690** | **73,504** |

Source: 2005 UWMP.
SBMWD also transfers a small quantity of water to the East Valley Water District to blend with the EVWD's supply water to meet safe drinking water standards. In return EVWD transfers water back to SBMWD at a 2.5:1 ratio to compensate for energy and other costs of transferring the water. This water is not included in the projected water supply because projections are not known.

*Normal, Dry, and Multiple Dry Year Projections*

The 2005 UWMP projects the reliability of water for future years based on varying weather conditions: with normal weather conditions, with a single-dry year, and with multiple dry years. The demands for water are based on buildout conditions in 2053 (364,600 afy). Table 5.15-4 presents the projected water supply and demand through year 2025 for normal weather conditions and for a single dry year condition. If a single dry year were to occur, in this case in 2025, the water supplies would shortfall by 11 percent, which represents a

10 percent reduction in demand. In order to adapt to conditions such as this, SBMWD would need to increase conservation and public education efforts. By doing so, SBMWD has indicated that they would be able to supply water to all customers in these conditions.

**Table 5.15-4**
**Projected Water Supply and Demand for Normal and Single Dry Conditions without Project**

| | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|
| **Normal Year** | | | | |
| Total Demand | 54,780 | 61,879 | 67,690 | 73,504 |
| Percent of 2005 | 115% | 130% | 142% | 155% |
| Total Supply | 54,780 | 61,879 | 67,690 | 73,504 |
| Percent of 2005 | 115% | 130% | 142% | 155% |
| Difference (Supply minus Demand) | 0 | 0 | 0 | 0 |
| Difference as Percent of Supply | 0% | 0% | 0% | 0% |
| Difference as Percent of Demand | 0% | 0% | 0% | 0% |
| **Single Dry Year** | | | | |
| Total Demand | 54,780 | 61,879 | 67,690 | 73,504 |
| Percent of 2005 | 115% | 130% | 142% | 155% |
| Total Supply | 54,780 | 61,879 | 67,690 | 66,154 |
| Percent of 2005 | 115% | 130% | 142% | 155% |
| Difference (Supply minus Demand) | 0 | 0 | 0 | 7,350 |
| Difference as Percent of Supply | 0% | 0% | 0% | 11% |
| Difference as Percent of Demand | 0% | 0% | 0% | 10% |

Source: 2005 UWMP.

Different scenarios for multiple dry years are shown in Tables 5.15-5 through 5.15-7. The ability for SBMWD to accommodate dry water years is dependent on the activities of SBVMWD, such as the amount of SWP water they have reserved and the amount of water allocated to SBVMWD and the water agencies within its service area (including SBMWD) from the BHG Basin. Depending on when the multiple dry years would occur, the impacts on water supply and demand would vary. If the multiple dry years were to occur between 2011 and 2015 or between 2016 and 2020, SBMWD would be able to accommodate drought years by depending on SWP reserves of SBVMWD and groundwater supplies in the BHG Basin. Shortfalls would occur after 2022 because the projected population within the service area would be high enough to create a demand for water that exceeds the dry year condition supplies. As shown in Table 5.15-7, multiple dry years between 2022 and 2025 would result in supply levels dropping by 700 afy in 2022 to 7,350 afy in 2025.

**Table 5.15-5**
**Multiple Dry Year Conditions for 2011 through 2015 without Project**

| | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Total Demand | 56,200 | 57620 | 59,039 | 60,459 | 61,879 |
| Total Supply | 56,200 | 57,620 | 59,039 | 60,459 | 61,879 |
| Difference (Supply minus Demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as Percent of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as Percent of Demand | 0% | 0% | 0% | 0% | 0% |

Source: UWMP 2005.

**Table 5.15-6**
**Multiple Dry Year Conditions for 2016 through 2020 without Project**

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Total Demand | 63,041 | 64,203 | 65,366 | 66,528 | 67,690 |
| Total Supply | 63,041 | 64,203 | 65,366 | 66,528 | 67,690 |
| Difference (Supply minus Demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as Percent of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as Percent of Demand | 0% | 0% | 0% | 0% | 0% |

Source: UWMP 2005.

**Table 5.15-7**
**Multiple Dry Years for 2021 through 2025 without Project**

| | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| Total Demand | 68,853 | 70,016 | 71,178 | 72,341 | 73,504 |
| Total Supply | 68,853 | 69,315 | 68,331 | 67,277 | 66,154 |
| Difference (Supply minus Demand) | 0 | -700 | -2,847 | -5,064 | -7,350 |
| Difference as Percent of Supply | 0% | -1% | -4% | -8% | -11% |
| Difference as Percent of Demand | 0% | -1% | -4% | -7% | -10% |

Source: UWMP 2005.

### *Assumptions Made for Spring Trails Project Site in 2005 UWMP*

The Spring Trails site was included in the 2005 UWMP with a water demand based on 2005 City of San Bernardino General Plan land uses (Litchfield 2009). The total projected water demand in opening year 2013 would be 59,039 afy, to be met by available water supply of 59,039 afy.[1] The Spring Trails area is designated as Residential Estate (RE) in the 2005 General Plan, which has a water demand rate of 0.93 gallons per minute (gpm) per acre. This demand rate is based on the actual demand of 388 (out of approximately 400) existing accounts in SBMWD's service area that fall into the RE land use designation at the time of the 2005 UWMP (Nevarez 2009a). The demand rate of 0.93 and an 85 percent buildout assumption were used to find the total demand of areas designated as RE; this total demand is reflected in the 2005 UWMP. Table 5.15-8 shows the demand of the project site as it was assumed in the 2005 UWMP. By 2025, according to General Plan projections, the buildout on the Spring Trails site would cover 300 acres, demanding an average of 450 acre-feet of water per year.

**Table 5.15-8**
**2005 UWMP Assumptions for the Project Site (without Project)**

| Project Site Area | 85% Buildout Assumption | Demand Rate for RE Land Use | Total Water Demand for Project Site |
|---|---|---|---|
| 353 acres | 300 acres | 0.93 gpm/ac | 328 gpm (450 afy) |

Source: City of San Bernardino 2005a; Litchfield 2009.

[1] Based on a forecasted amount between the 2010 and 2015 supply projections in the 2005 UWMP.

***Assumptions Made for Spring Trails Project Site in 2010 UWMP (with Project)***

The proposed project's projected water demand has been taken into account in the 2010 San Bernardino Valley Regional UWMP, which includes the supply and demand for SBVMWD, East Valley Water District, City of Loma Linda, City of Redlands, West Valley Water District, Yucaipa Valley water District, and the City of Colton. At the time this DEIR was written, the 2010 San Bernardino Valley Regional UWMP had been adopted by the SBVMWD Board of Directors but it had not yet been adopted by CDWR.

Total average water use in the SBMWD service area is projected to reach 52,474 afy in 2015 and increasing to 55,653 in 2035. The projected average water supply is projected to reach 68,639 afy in year 2015 and 100,164 afy in year 2035. Water supply would adequately meet water demands within the SBMWD service area. The 2010 San Bernardino Valley Regional UWMP assumes the project site would use an average 530 afy (SBVMWD 2011).

**Indications and Planning for Long-Term Water Supply in California**

On June 5, 2008, Governor Arnold Schwarzenegger declared a statewide drought and directed state agencies and departments to take specified actions. Governor Schwarzenegger proclaimed a state of emergency on February 27, 2009, and directed all state government agencies to utilize their resources, implement a state emergency plan, and provide assistance for people, communities, and businesses impacted by the drought. Spring 2008 marked the fourth driest spring on record, coming off of a record dry year.

On April 20, 2011, the California Department of Water Resources released the most recent statement on SWP allocations to water contractors in California. At this time, total allocations are 3,337,701 acre-feet of water per year, 80 percent of the total requested amount (4,172,126 afy). This allocation percentage may be revised based on hydrological conditions throughout the remainder of the year.

Southern California faces the challenge of satisfying its water requirements and securing its firm water supplies. 2009 marked the third year of drought for California. Water year 2007–2008 resulted in 63 percent of average annual precipitation and water year 2008–2009 resulted in 72 percent of average annual precipitation. This caused drastic reductions of water deliveries through the SWP, especially to central and southern California, and can be reflected in the recent conditions of the state's major reservoirs. Table 5.15-9 shows water levels during the recent drought and current water levels of the state's reservoirs in comparison to their capacity and historical averages. Since 2009, annual precipitation has increased and is currently at 138 percent of annual averages (CDWR 2011a).

**Table 5.15-9**
**California Reservoir Conditions**

| Reservoir | Capacity (TAF) | Current Level as Percentage of Capacity | | Current Level as Percentage of Historic Average | |
|---|---|---|---|---|---|
| | | 2009 (Drought) | 2011 (Normal) | 2009 (Drought) | 2011 (Normal) |
| Trinity Lake | 2,448 | 48% | 97% | 58% | 110% |
| Shasta Reservoir | 4,552 | 52% | 97% | 71% | 116% |
| Lake Oroville | 3,538 | 45% | 99% | 60% | 117% |
| Folsom Lake | 977 | 65% | 94% | 87% | 109% |
| New Melones | 2,420 | 51% | 91% | 84% | 146% |
| Don Pedro Reservoir | 2,030 | 81% | NA | 106% | NA |
| Exchequer Reservoir | 1,025 | 58% | 87% | 85% | 120% |
| Millerton Lake | 520 | 87% | 76% | 132% | 94% |
| San Luis Reservoir | 2,033 | 18% | 91% | 35% | 126% |
| Pine Flat Reservoir | 1,000 | 38% | 87% | 69% | 121% |
| Pyramid Lake | 171 | 97% | 96% | 103% | 102% |
| Castaic Lake | 325 | 74% | 96% | 87% | 109% |

Source: CDWR 2009b; CDWR 2011
TAF = Thousand acre feet.

Other factors aside from precipitation affect water supply reliability. Delta pumping restrictions due to the endangered delta smelt, climate change, and levee vulnerability to floods and earthquakes have increased uncertainty regarding the reliability of water sources. Continued population and economic growth correspond to increased water demands in the region, putting an even larger burden on local supplies. Significant areas affecting delivery reliability are discussed below.

***Supply Limitation from Northern California: The Delta Smelt***

The delta smelt is a federally and state-listed threatened fish species that inhabits the estuaries of the Bay-Delta region. In May 2007, a federal court invalidated the biological opinion issued by the US Fish and Wildlife Service for operations of the SWP and Central Valley Project with regard to the Delta smelt. On August 31, 2007, the federal court ordered interim operating rules until a new biological opinion is approved. Under the ruling, operational limits on delta pumping are in place from the end of December, when fish are about to spawn, until June, when the smelt migrate. The federal ruling and protective measures will be in effect until the biological opinion is rewritten. According to the Metropolitan Water District (MWD), the protective measures will have an effect on future SWP operations and supplies. According to the 2007 MWD Integrated Resource Plan Implementation Report, based on initial estimates, MWD could see as much as 22 percent reduction, on average, of its SWP supplies in 2008 and beyond. In addition to the interim remedies and the proceedings to address immediate environmental concerns, the Delta Vision process and the Bay-Delta Conservation Plan process are defining long-term solutions for the Delta. The Final Bay-Delta Conservation Plan is expected to be completed by 2013 (BDCP 2011). Prior to the court decision, MWD's board approved a Delta Action Plan in May 2007 that described short-, mid- and long-term conditions and the actions to mitigate potential supply shortages and to develop and implement long-term solutions.

***Climate Change and its Effects on California Water Supply***

The CDWR released the report, "Progress on Incorporating Climate Change into Management of California's Water Resources" (July 2006), considering the impacts of climate change on the state's water supply. CDWR emphasizes that "the report represents an example of an impacts assessment based on four scenarios defining an expected range of potential climate change impacts." CDWR's major goal is to extend the

analysis for long-term water resource planning from "assessing impacts" to "assessing risk." The report presents directions for further work in incorporating climate change into the management of California's water resources. Emphasis is placed on associating probability estimates with potential climate change scenarios in order to provide policy makers with both ranges of impacts and the likelihoods associated with those impacts. DWR's report acknowledges "that all results presented in this report are preliminary, incorporate several assumptions, reflect a limited number of climate change scenarios, and do not address the likelihood of each scenario. Therefore, these results are not sufficient by themselves to make policy decisions."

The potential climate change impacts on the Colorado River Basin are included in the 2006 CDWR report. The Colorado River depends mainly on annual snow melt as a water supply. An increase of 1.1 to 2.0 degrees Celsius is expected in the basin by 2050, causing a peak in snowmelt runoff 5 to 25 days earlier. This is not seen as a critical concern for the river's yield. The change in amount of precipitation would be a greater concern affecting water supplies from the river basin. A large percentage (85 percent) of the upper basin runoff comes from high elevations, suggesting that changes in mountain temperature and precipitation would have substantial effects on the river's annual water yield. An increase in temperature would also increase evaporation rates in reservoirs and evapotranspiration rates in plants along the river and its tributaries. Along with increasing water demand, these potential reductions in water supply from the Colorado River indicate that responsive and smart water planning would be needed in the future for the Colorado River basin and agencies that depend on it for potable and nonpotable water.

In April 2009, CWDR released the report "Using Future Climate Projections to Support Water Resources Decision Making in California," which projects future water supply and demand conditions for the SWP and the Central Valley Project, based on the potential impacts from climate change. Predictions disclosed in this report for the 21st century are based on the conversion of global climate models (GCM) to regional models specific for California. They take into consideration changes in sea level, changes in stream flow, the amount of water demanded by agriculture and outdoor water uses, and predictions in climate variability (CDWR 2009b). Based on the conversions of GCMs to California models, future water supply scenarios indicate that annual Bay Delta exports would reduce by approximately 7 to 10 percent by the middle of the 21st century and by 21 to 25 percent by the end of the century; reservoir carryover storage would reduce by 15 to 19 percent by midcentury and by 33 to 38 percent by the end of the century; and annual groundwater pumping is likely to increase for most California localities (CDWR 2009b). Again, an increase in water demand in combination with a reduction in SWP and reservoir supplies indicates a strong need for smarter water management and planning by jurisdictions in southern California, including SBMWD.

***Water Supply Management and Planning***

*Integrated Regional Water Management Plan for the Upper Santa Ana River Watershed*

SBVMWD is the lead water agency directing the development of IRWMP, with active participation from SBMWD and other water agencies and stakeholders. The CDWR has granted a fund to SBVMWD to complete this plan. When completed, the plan would guide water management for cities and communities from Big Bear Lake and the headwaters of the Santa Ana River to the Riverside Narrows (approximately 824 square miles), covering portions of both San Bernardino and Riverside counties. It would coordinate the existing planning documents and legal documents governing the management of groundwater and surface water within SBVMWD's service area with other plans for the region, including the Santa Ana River Watershed Project Authority regional plan (SBVMWD 2007; SBMWD 2005).

*The Drought Water Bank*

During the recent drought years, the CDWR established a Drought Water Bank to help facilitate the exchange of water throughout the state and assist water suppliers like MWD and SBVMWD at risk of experiencing drought-related shortages and requiring supplemental supplies to meet anticipated demands. CDWR purchased water from willing sellers upstream of the Sacramento-San Joaquin Delta and transferred it to public and private water suppliers that were at risk of experiencing water shortages in 2009. In 2010, CDWR adopted a drought contingency plan, to be updated every five years, to improve drought response and coordination with local agencies (CDWR 2010).

**Principles Governing CEQA Analysis of Water Supply**

In *Vineyard Area Citizens for Responsible Growth, Inc., v. City of Rancho Cordova* (February 1, 2007), the California Supreme Court articulated the following principles for analysis of future water supplies for projects subject to CEQA:

- To meet CEQA's informational purposes, the EIR must present sufficient facts to decision makers to evaluate the pros and cons of supplying the necessary amount of water to the project.

- CEQA analysis for large, multiphase projects must assume that all phases of the project will eventually be built and the EIR must analyze, to the extent reasonably possible, the impacts of providing water to the entire project. Tiering cannot be used to defer water supply analysis until future phases of the project are built.

- CEQA analysis cannot rely on "paper water." The EIR must discuss why the identified water should reasonably be expected to be available. Future water supplies must be likely, rather than speculative.

- When there is some uncertainty regarding availability of future water supply, an EIR should acknowledge the degree of uncertainty, include a discussion of possible alternative sources, and identify the environmental impacts of such alternative sources. Where a full discussion still leaves some uncertainly about the long-term water supply's availability, mitigation measures for curtailing future development in the event that intended sources become unavailable may become a part of the EIR's approach.

- The EIR does not need to show that water supplies are definitely assured because such a degree of certainty would be "unworkable, as it would require water planning to far outpace land use planning." The requisite degree of certainty of a project's water supply varies with the stage of project approval. CEQA does not require large projects, at the early planning phase, to provide high degree of assurances of certainty regarding long-term future water supplies.

- The EIR analysis may rely on existing urban water management plans, as long as the project's new demand was included in the water management plan's future demand accounting.

- The ultimate question under CEQA is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project.

#### 5.15.1.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

U-2 Would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

U-4 Would not have sufficient water supplies available to serve the project from existing entitlements and resources, and new and/or expanded entitlements would be needed.

#### 5.15.1.3 Environmental Impacts

The alternative (overhead electric lines) development plan contains 304 units compared to 307 units proposed in the preferred development plan. Therefore the analysis below uses the preferred development plan to assess impacts to water distribution facilities in the City. This analysis can be applied to either scenario to determine impacts.

***IMPACT 5.15-1: SPRING TRAILS WOULD USE 529 ACRE-FEET PER YEAR AND IS INCLUDED IN THE 2010 SAN BERNARDINO REGIONAL URBAN WATER MANAGEMENT PLAN PROJECTIONS. THE PROJECT WOULD REQUIRE THE CONSTRUCTION OF ADDITIONAL WATER DISTRIBUTION INFRASTRUCTURE, INCLUDING RESERVOIRS, PUMP STATIONS, AND WATER MAINLINES THAT ARE NOT PART OF A CAPITAL IMPROVEMENTS PLAN. [THRESHOLDS U-2 AND U-4]***

***Impact Analysis:*** The water supply and demand analysis for this section is based on the research included in the "Water Distribution Analysis for Tentative Tract Map 15576," prepared for the SBMWD in March 2010.

The *Water Distribution Analysis for Tentative Tract Map 15576* used the following information and demand factors from the 2007 Water Master Plan to determine water use:

- Residential Estate (<2.05 du/ac) – 0.93 gpm per acre
- Residential Low (2.05 to 3.8 du/ac) – 2.08 gpm per acre
- Residential Suburban (3.8 to 6.75 du/ac) – 2.68 gpm per acre
- Residential Urban (6.75 to 11.5 du/ac) – 3.61 gpm per acre

**Projected Water Demands**

In the *Distribution Analysis*, water demand for the project site is based on average density over the entire project site area (352.8 acres). Considering the overall Spring Trails development of 307 residential dwelling units on 352.8 acres of land, the average parcel size for the entire development is estimated at 0.87 units per acre (SBMWD 2010). Proposed development plans indicate that individual parcels would range in size from 10,000 to over 600,000 square feet, averaging 27,337 square feet or 0.62 acres. Hence, this development would fall under the Residential Estate category with an average water demand of 0.93 gpm per acre. Based on a total development of 353 acres, rather than 85 percent buildout under the existing General Plan, the average annual water demand is estimated at 328 gpm, or 529 afy, as shown in Table 5.15-10.

**Table 5.15-10**
**Project Water Demand**

| Total Acres | Demand Rate for RE Land Use | Total Water Demand for Project Site |
|---|---|---|
| 353 | 0.93 gpm/acre | 529 afy |

Source: SBMWD 2010.

As shown in Table 5.15-8, the assumptions made by the City's General Plan for residential land uses of the project site were used in determining water demand in the 2005 UWMP. The updated 2010 UWMP for SBMWD has been incorporated into the San Bernardino Valley Regional UWMP. This regional UWMP also includes the supply and demand for SBVMWD, East Valley Water District, City of Loma Linda, City of Redlands, West Valley Water District, Yucaipa Valley water District, and the City of Colton. At the time this DEIR was written, the 2010 San Bernardino Valley Regional UWMP had been adopted by the SBVMWD Board of Directors but it had not yet been adopted by CDWR.

The proposed project's projected water demand has been taken into account in the 2010 San Bernardino Valley Regional UWMP. The same water distribution analysis prepared for this DEIR was also used to assume water demand of the proposed project in the 2010 San Bernardino Valley Regional UWMP (an average yearly demand of 530 acre-feet). Total average water use in the San Bernardino Valley region is projected to reach 52,474 afy in 2015 and increasing to 55,653 in 2035. The projected average water supply is projected to reach 68,639 afy in year 2015 and 100,164 afy in year 2035, indicating a surplus in water supply for the SBMWD service area (SBVMWD 2011).

### Onsite Water Storage Requirements

Maximum daily demand flows can be used to determine the amount of onsite water storage needed for the project. During days of high demand and peak hours, the water demand for the site would increase. Between average days and high demand days, the gpm rate would increase by a factor of 1.73, resulting in a total rate of 568 gpm on high demand days. Between high demand days and peak hours, the gpm rate would increase by a factor of 2, resulting in a peak hour demand rate of 1,136 gpm.

Table 5.15-11 shows the amount of water storage that would be needed to meet maximum daily demand flows, emergency storage, operational storage, and fire flow requirements. Since each pressure zone would have a reservoir, the storage requirements for each reservoir are shown in comparison to the proposed capacity of the reservoirs.

**Table 5.15-11**
**Onsite Water Storage Facilities**

| Pressure Zone | 2,300 | 2,500 | 2,700 | 3,000 | Total |
|---|---|---|---|---|---|
| **Units** | **11** | **24** | **138** | **136** | **309** |
| Maximum Daily Demand (173% of average gpm/ac) | 20 gpm | 44 gpm | 254 gpm | 250 gpm | 568 |
| Emergency Storage[1] | 28,800 glns | 63,360 glns | 365,760 glns | 360,000 glns | 817,920 |
| Operational Storage[2] | 7,200 glns | 15,840 glns | 91,440 glns | 90,000 glns | 204,480 |
| Fire Flow Storage[3] | 360,000 glns | 360,000 glns | 360,000 glns | 360,000 glns | 1,080,000 |
| **Total Storage Required** | **396,000 glns** | **439,200 glns** | **817,200 glns** | **810,000 glns** | **2,102,400** |
| **Storage Provided by Reservoirs Serving the Project Site (in 2007 SBMWD Master Plan)** | **4,000,000 glns** | **2,500,000 glns** | **900,000 glns** | **900,000 glns** | **8,300,000** |

Source: SBMWD 2010.
glns = gallons; gpm = gallons per minute; ac = acre
[1] Equivalent to one full day of maximum demand
[2] Equivalent to 25% of one full day of maximum demand
[3] Fire flow required of 1,500 gpm for four-hour duration

## Water Delivery Systems

### *Offsite Improvements*

Spring Trails would require the construction of new water supply infrastructure. SBMWD has begun planning for infrastructure expansion in the Verdemont area that would accommodate Spring Trails. This expansion, the Verdemont infrastructure improvements, would occur in two phases and is needed to serve the 2,300-foot pressure zone.

*Phase I Improvements*

- **Palm Avenue booster pump station:** This station would have a total capacity of 10,343 gpm and would be able to pump water from the 1,720-foot pressure zone to the 1,916-foot pressure zone. Individual pump capacity would be 3,500 gpm.

- **Magnolia Avenue booster pump station:** This station would have a capacity of 6,737 gpm and would be able to pump water from the 1,916-foot pressure zone to the 2,100-foot pressure zone. Individual pump capacity would be 2,600 gpm.

- **24-inch Palm Avenue connector:** This would be a transmission line in the 1,916-foot pressure zone (Litchfield 2009, Nevarez 2009b).

These improvements were analyzed for environmental impacts in 2007. A mitigated negative declaration was approved by the SBMWD Board of Water Commissioners in April of 2007. Funding for these improvements was approved by the City, is included in SBMWD's Capital Improvements Program, and is incorporated into the 2009–2010 City budget (Litchfield 2009).

*Phase II Improvements*

The second phase for the Verdemont infrastructure improvements would connect the 2,100-foot pressure zone to the 2,300-foot pressure zone and is necessary to bring water supply to the Spring Trails site.

- **2300 zone east reservoir:** This reservoir, to be located adjacent to the Meyers Canyon Reservoir, approximately a quarter mile north of Perrin Drive, would have a capacity of 2 million gallons.

- **2300 zone east 4.8 mgd pumping station:** This pumping station would have a capacity of 3,333 gpm and would pump water from the 2100 to 2300 pressure zone.

- **2300 zone east 20-inch transmission main:** This would be a transmission main in the 2300 zone.

These improvements would be required for supplying water and maintaining appropriate water storage for the Spring Trails project. Currently, there is no funding planned for these improvements (Litchfield 2009).

***Onsite Improvements***

In addition to the proposed Verdemont infrastructure improvements, the Spring Trails plan includes onsite infrastructure improvements to be completed by the developer:

- **3000 zone reservoir:** This reservoir would be in the northeastern portion of the site and have 900,000 gallons of capacity.

- **2700 zone pumping station:** This would be a 1,200-gpm pump that would pump water between the 2,700-foot and 3,000-foot pressure zone.

- **2700 zone reservoir:** This reservoir would be in the eastern portion of the site and have 900,000 gallons of capacity.

- **2500 zone pumping station:** This would be a 1,400-gpm pump that would pump water between the 2,500-foot and 2,700-foot pressure zones.

- **2500 zone reservoir:** This reservoir would be in the southeastern portion of the site and have 2,000,000 gallons of capacity.

All offsite and onsite improvements are depicted in Figure 3-10, *Conceptual Water Plan, Area*, and Figure 3-11, *Conceptual Water Plan, Onsite Water Mains*, in Chapter 3, *Project Description*. The onsite improvements would need to be constructed and funded by the developer prior to the development of the site. The pipelines within the development are considered distribution lines for all practical purposes. The pipelines that connect pump stations to the reservoirs would be a minimum of 20 inches in diameter. All looping lines would be 12 inches in diameter and other distribution pipelines would be 8 inches in diameter.

The Phase I and Phase II improvements would need to be included in the SBMWD Capital Improvements Plan (CIP) and incorporated into the City's budget. Phase I improvements were included in the 2009–2010 City Budget, but the Phase II improvements were not. Funding for the offsite improvements in the CIP would come from developer impact fees, which would be paid in part (fair share) by the developer.

All the planned water infrastructure improvements that would be necessary to serve Spring Trails are summarized in Table 5.15-12. The existing and planned infrastructure would have enough capacity to support the planned development.

**Table 5.15-12**
**Planned Water Infrastructure Projects**

| Planned Structure | Capacity | Funding |
|---|---|---|
| **Verdemont Infrastructure Improvements – Phase 1** | | |
| Palm Avenue booster pump station | 16,683 afy (10,343 gpm) | Yes, in 2009–2010 City budget |
| Magnolia Avenue booster pump station | 10,867 afy (6,737 gpm) | Yes, in 2009–2010 City budget |
| 24-inch Palm Avenue connector | NA | Yes, in 2009–2010 City budget |
| **Verdemont Infrastructure Improvements – Phase 2** | | |
| 2300 zone east reservoir | 12.28 af (4 million gal) | No present funding |
| 2300 zone east pump station | 2,940 afy (2,048 gpm) | No present funding |
| 2300 zone east 20-inch transmission main | NA | No present funding |
| **Onsite Planned Infrastructure** | | |
| 2500 zone reservoir | 7.67 af (2.5 million gal) | Would be funded by developer |
| 2700 zone reservoir | 2.76 af (0.9 million gal) | Would be funded by developer |
| 3000 zone reservoir | 2.76 af (0.9 million gal) | Would be funded by developer |
| 2700 zone pump station | 1,936 afy (1,750 gpm) | Would be funded by developer |
| 2500 zone pump station | 3,232 afy (2,004 gpm) | Would be funded by developer |
| Onsite 12-inch transmission mains | NA | Would be funded by developer |
| Total Existing Reservoir Capacity in Verdemont (see Table 5.15-1) | 37.82 af (12.3 million gal) | |
| Total Planned Reservoir Capacity (Onsite) | 25.54 af (8.3 million gal) | |
| **Total Reservoir Capacity (Planned and Existing)** | **63.36 af (20.6 million gal)** | |

Source: Litchfield 2009; Nevarez 2009a; Spring Trails Specific Plan.
af = acre-feet
afy= acre-feet per year
gpm = gallons per minute

## Fire Flow Analysis

Fire flow for Spring Trails would need to meet a requirement of 1,500 gpm with a four hour duration, as indicated by the San Bernardino Fire Department. SBMWD would be able to meet this demand once the proposed infrastructure in the 2,300-foot zone is completed (Litchfield 2009). The same pipelines that would supply the site with domestic water would also be used for fire suppression through connections with fire hydrants.

### *Reliability of Water Supplies*

*SWP Allocations*

2009 was the third consecutive drought year for California, and the impacts were seen through changes to water allocations of SWP water. In April 2011, CDWR increased water allocations to 80 percent of the requested amounts (CDWR 2011). SBVMWD, the SWP contractor for the San Bernardino Valley, is included on this list of contractors and should receive 82,080 acre-feet in 2011, 80 percent of its entitlement. Projected SWP reliability throughout future years is uncertain. Ultimate contract amounts total 4.2 million afy, but yearly deliveries are only a fraction of this amount. SBVMWD and other water agencies reliant on some portion of SWP water should reduce their dependence on this source of water and focus on alternative technologies, conservation efforts, and storage activities to guarantee water supply in the future.

*BHG Basin Trends*

The BHG Basin is the most important source of water for the SBMWD. Approximately 1.5 million acre-feet of groundwater in the basin is extractable. In 2008, the cumulative change in groundwater storage since 1934

was a negative 354,595 acre-feet. Annual changes in storage capacity are shown in Table 5.15-2. The last year the basin had a positive cumulative change was 1998 (74,083 afy).

**Onsite Water Conservation**

Chapter 5 of the Spring Trails Specific Plan includes a number of design guidelines and practices that would improve onsite water conservation. Some of these guidelines and practices include:

- Required diversion of stormwater runoff into onsite detention basins to enable recharge
- Recommended collection of rainwater and additional stormwater runoff by diverting runoff to pervious surfaces or bioswales to reduce unnecessary runoff
- Required use of high efficiency, xeriscape irrigation systems to reduce the amount of water devoted to landscaped areas
- Includes bubbler irrigation and low-angle, low-flow nozzles on sprayheads
- Required installation of properly programmed EvapoTranspiration-based controllers on homeowners' properties with the appropriate information for the homeowners
- Required installation of motion sensors and other similar irrigation technology to ensure that landscaping is watered only as needed
- Required planting of plant species that are drought tolerant, heat resistant, and hardy
- Prohibition of the use of large turf areas in landscaping by substituting water-conserving native groundcovers or perennial grasses, shrubs, and trees
- Recommended construction of trails with pervious materials such as earth or decomposed granite.
- Required grouping of plants with similar water requirements together, a technique known as hydrozoning (reference is available from the California Department of Water Resources)
- Recommended mulching of planting beds and apply compost and environmentally friendly fertilizers to promote healthy topsoil, maximize plant growth, reduce plant replacement, and reduce the need for longer or more frequent irrigation run times

The following practices are recommended for buildings:

- Required installation of water-efficient faucets and appliances in residences
- Required installation of sensor-operated faucets in nonresidential buildings
- Recommended use of toilets that use less that 1.6 gallons per flush, waterless urinals in nonresidential buildings, and faucets and showerheads that use less than 2.5 gallons per minute

The implementation of these practices would help to reduce the amount of water by reducing the water used by each residence and through controlling water loss in public areas by using water-smart landscaping and reclamation techniques.

#### 5.15.1.4 Cumulative Impacts

Cumulative impacts would occur if the Spring Trails project, in combination with other planned or projected urban development within the service area of SBMWD, would create additional need for infrastructure expansion and/or improvements, or create a cumulative demand for water in the SBMWD service area. The buildout of San Bernardino and its sphere of influence would increase the number of residential units to 95,644 and the amount of nonresidential square feet to 203,604,932. Development in the Verdemont area would use some of the same water distribution infrastructure as Spring Trails. Phases I and II of the improvements are meant to serve future growth in this area. The onsite infrastructure improvements would not be used by adjacent development. This analysis of cumulative impacts to water distribution facilities is applicable to both the preferred development plan and the alternative (overhead electric lines) development plan.

#### 5.15.1.5 Existing Plans, Programs, and Policies

San Bernardino Municipal Code, Chapter 13.24, *Water Supply System*

San Bernardino Municipal Water Department Capital Improvements Plan

#### 5.15.1.6 Level of Significance Before Mitigation

Without mitigation, the following impact would be potentially significant:

- Impact 5.15-1: Spring Trails would require the construction of additional off-site water distribution infrastructure, including reservoirs, pump stations, and water mainlines that are not part of a CIP.

#### 5.15.1.7 Mitigation Measures

15-1 Completion of the Phase II Verdemont water delivery infrastructure improvements shall be verified by the SBMWD prior to issuance of occupancy permits for Spring Trails. The offsite improvements as shown in Table 5.15-13, include the east reservoir, east pump station, and east 20-inch transmission main. The project applicant shall contribute fair-share funding for the improvements through development impact fees or through an alternate financial arrangement with the SBMWD. A funding and phasing program for the improvements shall be in-place (e.g., Capital Improvements Program) or negotiated with the project applicant prior to issuance of building permits.

#### 5.15.1.8 Level of Significance After Mitigation

Mitigation measures 15-1 and 15-2 would reduce the project's significance related to water supply entitlements to a less than significant level.

### 5.15.2 Sewer Services and Site Drainage

#### 5.15.2.1 Environmental Setting

The proposed Spring Trails project site would be served by the City of San Bernardino Public Works Department (Public Works Department) upon annexation of the site. The Public Works Department has a Wastewater Collection System Master Plan (2002) that provides policies that guide the design and

construction of wastewater collection systems. Project engineers are in charge of designing systems in accordance to this master plan.

Residents of the 26.4-acre annexation area currently use onsite septic systems to dispose of wastewater. Upon annexation into the City of San Bernardino, wastewater would continue to be disposed of in this manner until the City expands sewer facilities to this area in the future.

**Wastewater Treatment and Collection**

The nearest sewer line to the proposed project site is an eight-inch diameter sewer line at the intersection of Meyers Road and Little League Drive to the southeast of the site. From here, wastewater drains east on West Little League Drive to Kendall Drive, then to 40th Street, continuing to Mountain View Avenue, and then to Waterman Avenue before emptying into the 33 mgd capacity Margaret H. Chandler Water Reclamation Plant (WRP).

The WRP is a secondary treatment facility serving a population of over 185,000, including the cities of San Bernardino and Loma Linda, the East Valley Water District customers (some of which are within the City of San Bernardino), the San Bernardino International Airport, Patton State Hospital, and parts of San Bernardino County. The WRP has been owned and operated by SBMWD since 1973, treating both residential and industrial wastewater. The WRP treatment process includes screening, grit removal, primary clarification, activated sludge (biological oxidation) with nitrification and denitrification, and secondary clarification, ensuring all water discharged into the Santa Ana River is properly treated. A portion of this water is then sent to the RIX Facility to be treated to tertiary standards and used as recycled water for landscaping irrigation or pumped into the Santa Ana River to meet flow rate standards in the lower Santa Ana River Watershed. Table 5.15-13 shows the projected average wastewater collection of the WRP and the RIX Facility.

***Table 5.15-13***
***Projected Wastewater Flow and Treatment in the SBMWD Service Area (in afy)***

| Wastewater Facility | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | Effluent Flow | Treatment Level |
|---|---|---|---|---|---|---|---|---|
| WRP | 28,371 | 30,230 | 30,790 | 35,828 | 38,627 | 41,426 | Flows to RIX | Secondary |
| RIX Facility | 35,089 | 36,948 | 39,747 | 42,546 | 45,345 | 48,114 | Santa Ana River & recycled water | Tertiary/Title 22 |

Source: 2005 UWMP.

Three trunk lines feed into the WRP: the Arrowhead, “E” Street, and East Side trunks. Table 5.15-14 gives the various flow rates for these three trunk lines.

***Table 5.15-14***
***San Bernardino Wastewater Reclamation Plant Trunk Lines***

| Trunk Name/Location | Size (inches) | MGD |
|---|---|---|
| Arrowhead: Arrowhead Avenue & Orange Show Road | 54 | 8.04 |
| “E” Street: “E” Street & Chandler Place | 20 | 3.06 |
| East Side: Amos Avenue & Dumas Street | 54 | 14.23 |

Source: San Bernardino 2005b.

**Storm Drainage Systems**

The existing drainage on the proposed project's site follows generally natural patterns, with most stormwater drainage flowing into the Cable Canyon and Meyers Canyon drainageways. In general, stormwater runoff flows from Cable Canyon to Cable Creek, and then into the Devil Creek Diversion Channel, where it is directed to Lytle Creek and eventually into the Santa Ana River. Onsite drainage flows into one of four drainage areas (drainage areas A, B, C, and D) that are described in more detail in Section 5.7, *Hydrology and Water Quality*. The stormwater drainage on the adjacent 26.4 acre annexation area currently flows into Cable Creek and then into the Devil Creek Diversion Channel, where it is directed to Lytle Creek and eventually into the Santa Ana River.

### *5.15.2.2 Thresholds of Significance*

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

U-1 Would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

U-3 Would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

U-5 Would result in a determination by the wastewater treatment provider which serves or may serve the project that is has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

### *5.15.2.3 Environmental Impacts*

The alternative (overhead electric lines) development plan contains 304 units compared to 307 units proposed in the preferred development plan. Therefore the analysis below uses the preferred development plan to assess impacts to stormwater drainage facilities in the City.

***IMPACT 5.15-2: DEVELOPMENT OF THE PROJECT SITE WOULD REQUIRE CONSTRUCTION OF NEW STORMWATER DRAINAGE SYSTEMS AND FACILITIES THAT WOULD MEET REGIONAL WATER QUALITY CONTROL BOARD REQUIREMENTS. [THRESHOLDS U-1 AND U-3]***

***Impact Analysis:*** The development of the proposed project would require the construction of new stormwater drainage facilities and infrastructure. For the most part, natural drainage patterns would be preserved with the proposed development of the site. Major improvements would include three stormwater detention basins that would also serve as community parks. Two of these, in the western and southern portion of the site, near Meyers Road, would serve as neighborhood parks. The other, in the south-central portion of the site, would be a dog park. The water in these detention basins would be treated and then discharged at a controlled rate into Cable Canyon Creek.

Other stormwater drainage facilities would consist of 24-inch to 96-inch reinforced concrete pipes that would be placed along the major looped road. Culverts would be constructed to maintain natural drainage patterns in each of the drainage areas (A, B, C, and D) where proposed roadways would otherwise obstruct the drainage flow. The proposed retention basins, reinforced concrete pipes, and culverts may be seen in Figure 3-9, *Conceptual Drainage Plan,* in Chapter 3, *Project Description*.

Prior to site grading, a stormwater pollution prevention plan permit must be approved by the Santa Ana Regional Water Quality Control Board (RWQCB). A water quality management plan has also been prepared for the Spring Trails Specific Plan in accordance with the Santa Ana RWQCB. This plan includes best management practices (BMPs) to reduce the volume, rate, and amount of stormwater runoff that must be treated and reduce the potential for urban runoff and pollutants from coming into contact with one another. Section 5.7, *Hydrology and Water Quality*, includes additional discussion on stormwater and runoff impacts on water quality.

Although the proposed development would necessitate the construction of new facilities and infrastructure, their construction would help to maintain the natural drainage patterns of the site and would control the stormwater runoff flow so that it would not exceed the capacities of Cable Canyon Creek leaving the site.

The existing stormwater drainage patterns of the adjacent 26.4-acre annexation area would not be impacted by the proposed project and would continue to function as it does currently.

***IMPACT 5.15-3:*** ***THE WASTEWATER FLOW OF THE PROPOSED PROJECT WOULD NOT EXCEED THE FULL FLOW CAPACITIES OF EXISTING SEWER LINES OR WASTEWATER FACILITIES; HOWEVER, NEW ONSITE PIPELINES WOULD NEED TO BE CONSTRUCTED TO SERVE THE PROJECT AND A POTENTIAL UPGRADE WOULD BE NEEDED FOR THE EXISTING PIPELINE AT LITTLE LEAGUE DRIVE. [THRESHOLD U-5]***

***Impact Analysis:*** The proposed Spring Trails project would be served by the Public Works Department upon the annexation of the project site. The design, construction, and conveyance capabilities of the sewer lines are the responsibility of the project engineer and would be required to follow the Public Works Department sewer design policies and requirements. As shown in Figure 3-12, *Conceptual Sewer Plan*, in Chapter 3, *Project Description*, the proposed sewer lines would connect to the eight-inch sewer line at the intersection of Meyers Road and Little League Drive.

A residential wastewater generation rate of 182 gpd per acre was used to determine the daily flow rates of the proposed project. This rate is used for developments with residential densities of one unit per acre or less. The Sewer Capacity Analysis prepared for the project site by Rick Engineering (Appendix L) finds the flow rate of the proposed project would reach 327,283.2 gallons per day (366.6 afy). The WRP has a projected wastewater flow of 35,828 afy in 2015 (31.985 mgd). With a capacity of 33 mgd, the plant would have remaining capacity for 1.015 mgd. The project's expected wastewater flow of 327,283.2 gpd is within the projected flow capacity of the WRP near opening year 2013 (35,828 afy in 2015).

The onsite sewer lines would be eight inches in diameter, designed to accommodate a flow rate of 1.354 cubic feet per second (cfs) (203 gpm). The actual onsite flow would be 0.5064 cfs. The Sewer Capacity Study assessed the existing conditions of the sewer system that would be used by the Spring Trails project and the capacity that would be required for proposed sewer lines. The report used the City of San Bernardino Public Works Sewer Policy and Procedures design criteria for sanitary sewers based on City sewer buildout conditions in year 2020. The City's Sewer Master Plan is based on City buildout in 2020. The analysis of the existing sewer system found that four locations had a pipe flow over that of the design flow for the pipe section. These four locations were still below the full flow capacity of the sewer pipe sections. The recommended changes to the pipe sections with flow greater than design flow are listed in Table 5.15-15.

**Table 5.15-15**
**Existing and Proposed Sewer Pipe Diameters**

| ID | Location | Existing Diameter | Full Flow | Design Flow | 2020 Pipe Flow with Project | Difference between Design and Pipe Flow | Recommended Diameter |
|---|---|---|---|---|---|---|---|
| 201 | North Little League Drive | 8 inches | 2.813 cfs | 1.401 cfs | 1.433 cfs | 0.032 cfs | 10 inches |
| 27 | West Little League Drive | 10 inches | 3.061 cfs | 1.525 cfs | 1.568 cfs | 0.043 cfs | 12 inches |
| 571 | Little Mountain Drive at Kendall Drive | 12 inches | 4.931 cfs | 2.457 cfs | 3.957 cfs | 1.5 cfs | 15 inches |
| 2241 | Central Avenue at Waterman Avenue | 54 inches | 26.179 cfs | 23.835 cfs | 25.279 cfs | 1.444 cfs | Parallel system[1] |

Source: Rick Engineering 2009.
[1] It is recommended that a parallel sewer line be added next to this existing pipe rather than resizing it.

Since all of the pipeline sections are still within the full flow capacity, upgrades are not required. The existing sewer system would be able to accommodate the wastewater flow from the proposed project. However, the slope of the proposed pipeline in Verdemont Drive is not known. Depending on this slope, the pipeline would be either 8 or 10 inches in diameter. If a 10-inch pipeline is used, the existing pipeline at North Little League Drive would need to be upgraded from 8 to 10 inches, since it is not recommended to have a 10-inch pipeline upstream of an 8-inch pipeline. The need for this upgrade would be determined during final engineering.

The proposed project would require the construction of new pipelines on the project site. The construction of new pipelines and pipeline improvements is designed within the road right-of-ways. Potential environmental impacts associated with these improvements are therefore addressed in this EIR in conjunction with the assessment of the development footprint.

#### *5.15.2.4 Cumulative Impacts*

**Stormwater Drainage Systems**

Cumulative impacts caused by the need to construct additional stormwater conveyance infrastructure could occur if Spring Trails were to use the same infrastructure as other developments. The Spring Trails project would discharge its treated stormwater into Cable Canyon Creek at a controlled rate. Impacts could occur if development north of or immediately adjacent to Spring Trails contributed stormwater runoff to the same drainage system as Spring Trails. Since Spring Trails is immediately surrounded by unincorporated San Bernardino County or San Bernardino National Forest, it is unlikely that development would occur in these areas. Additionally, any future developments would be required to ensure that there would not be any net peak increase in stormwater flow to the existing infrastructure. There would not be any cumulatively significant impacts related to the construction of stormwater facilities. This analysis of cumulative impacts to stormwater drainage systems is applicable to both the preferred development plan and the alternative (overhead electric lines) development plan.

**Wastewater Systems**

The proposed Spring Trails Specific Plan would generate 63 afy of wastewater. This represents 0.18 percent of the total wastewater flow capacity of the WRP (35,828 afy). In combination with growth in the area, the project would not have cumulatively significant impacts on wastewater infrastructure. The sewer study prepared for this report analyzed the project's contribution to projected flow rates of the existing sewer system in 2020. The projected flow rates were acquired from the City's Sewer Master Plan for year 2020 and incorporates projected growth in the service area. Since the project's wastewater flow would not exceed the full capacity flows of the existing sewer system as projected in 2020, there would not be any cumulative impacts related to the need for additional sewer system improvements. This analysis of cumulative impacts to wastewater systems is applicable to both the preferred development plan and the alternative (overhead electric lines) development plan.

#### *5.15.2.5 Regulations and Standards Conditions*

- San Bernardino Municipal Code, Section 15.04.130, On-site Improvement Permits, states "no person shall construct any on-site improvement for … the disposal of waste through a private sewer main [or] the conveyance of storm waters … without first obtaining a permit from the City Engineer."

- General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit 99-08-DWQ)

- NPDES permit No. CAG998001 and Regional Water Quality Control Board (RWQCB) Order No. R8-2003-0061 for discharges into storm sewers.

#### *5.15.2.6 Level of Significance Before Mitigation*

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.15-2 and 5.15-3.

#### *5.15.2.7 Mitigation Measures*

Impacts are less than significant and no mitigation measures are necessary.

#### *5.15.2.8 Level of Significance After Mitigation*

No mitigation measures have been identified. Sewer and stormwater system improvements would not have significant impacts on the environment.

### *5.15.3 Solid Waste*

#### *5.15.3.1 Environmental Setting*

**Regulatory Setting**

***Assembly Bill 939 and Senate Bill 1016***

Assembly Bill (AB) 939 (Chapter 1095, Statutes of 1989), the Integrated Waste Management Act, requires, among other things, every California city and county to divert 50 percent of its waste from landfills by the year 2000. In addition, AB 939 requires each county and each city within the county to prepare a Source

Reduction and Recycling Element for its jurisdiction, identifying waste characterization, source reduction, recycling, composting, solid waste facility capacity, education and public information, funding, special waste (asbestos, sewage sludge, etc.), and household hazardous waste, and a countywide siting element, specifying areas for transformation or disposal sites to provide capacity for solid waste generated in the jurisdiction that cannot be reduced or recycled for a 15-year period.

In 2008, Senate Bill (SB) 1016 was filed with the secretary of state, amending the process of measuring the 50 percent diversion requirements of AB 939 (CalRecycle 2009b). With SB 1016, jurisdictions measure their 50 percent diversion rate by using a per capita indicator rather than basing it on the total tonnage solid waste disposal and diversion. The jurisdiction's goal is to reach a 50 percent per capita disposal target, which is based on the actual tonnage disposed of by a jurisdiction when it is meeting a 50 percent diversion rate on an overall basis. This per capita target rate depends on the jurisdiction's total waste disposal as reported quarterly to CalRecycle and the annual population as reported by the Department of Finance. The jurisdiction must meet the 50 percent waste diversion rate of base years 2003 through 2006, expressed through a per capita disposal rate. To be in compliance with the 50 percent diversion rate requirements, jurisdictions must not dispose of more than 50 percent of their per capita disposal target. Waste diversion rates post-2007 will be expressed as per capita disposal (CalRecycle 2009b).

The waste diversion rates for the City of San Bernardino for years 1995 through 2006 are shown in Table 5.15-16. These rates use the total tonnage indicator of 50 percent waste diversion.

**Table 5.15-16**
**Board Reviewed Waste Diversion Rates for City of San Bernardino**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waste Diversion Rate | 23% | 35% | 44% | 43% | 46% | 46% | 45% | 45% | 42% | 45% | 53% | 54% |

Source: CalRecycle 2009a.
Percentages for years 2003 and 2004 have received time extensions for board approval.

The post-2006 50 percent diversion rates are based on the per capita indicator. CalRecycle has posted these rates online and made them available for jurisdictions so that they may set goals in reaching the 50 percent diversion rate. In the case of San Bernardino, these rates have not been board-approved and they do not indicate compliance. The rates for 2007 and 2008 are shown in Table 5.15-17.

**Table 5.15-17**
**Per Capita 50 Percent Diversion Rates for City of San Bernardino**

| | Target Disposal Rates (in lbs.day) | | Actual Disposal Rates (in lbs/day) | |
|---|---|---|---|---|
| Year | Residential 50 Percent Per Capita Disposal | Employee 50 Percent Per Capita Disposal | Residential 50 Percent Per Capita Disposal | Employee 50 Percent Per Capita Disposal |
| 2007 | 6.6 | 15.4 | 6.1 | 13.7 |
| 2008 | 6.6 | 15.4 | 5.6 | 12.3 |

Source: CIWMB 2009c.

***Assembly Bill 75***

AB 75 (Chapter 764, Statutes of 1999) requires that state agencies develop and implement an integrated waste management plan and that community service districts report disposal and diversion information to the city, county, or regional agency in which the community service district is located. The City of San Bernardino reports waste disposal and diversion information to CalRecycle.

**Solid Waste Services**

Solid waste service would be provided to the Spring Trails site and the adjacent 26.4 acre annexation area by the City of San Bernardino Refuse and Recycling Division, which provides service to residential and commercial customers for solid waste, recyclables, and green waste pick-up.

For 2007, the City of San Bernardino disposed of 227,594 tons of solid waste (CalRecycle 2009a). This amount reflects the total waste disposed after diversion of recyclable materials. The diversion rates for years 1995 through 2006 are shown on Table 5.15-17. Residential waste disposal accounted for approximately 30 percent of total waste (approximately 68,500 tons). Paper and other organic materials accounted for the majority of disposed waste materials, at 40 and 27.5 percent, respectively. Commercial waste disposal accounted for the remaining 70 percent of total waste (approximately 159,500 tons). In 2004, paper and other organic materials also accounted for the majority of waste disposed by commercial facilities at 33.8 and 32.6 percent, respectively (CalRecycle 2009a).

Mainly two landfills would be receiving solid waste from the proposed project: the Mid-Valley and San Timoteo sanitary landfills. The Mid-Valley Sanitary Landfill has a remaining capacity of 35,270,000 cubic yards, and the permitted maximum daily disposal rate is 7,500 tons. San Timoteo Sanitary Landfill has a remaining capacity of 9,491,163 cubic yards, and the maximum daily disposal rate is 1,000 tons.

### *5.15.3.2 Thresholds of Significance*

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

U-6 Would be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.

U-7 Would not comply with federal, state, and local statutes and regulations related to solid waste.

### *5.15.3.3 Environmental Impacts*

The Alternative (overhead electric lines) development plan contains 304 units compared to 307 units proposed in the preferred development plan. Therefore the analysis below uses the preferred development plan to assess impacts to solid waste services in the City. This analysis can be applied to either scenario to determine impacts.

***IMPACT 5.15.4: THE PROPOSED PROJECT WOULD BE ADEQUATELY SERVED BY THE MID-VALLEY AND SAN TIMOTEO SANITARY LANDFILLS AND WOULD COMPLY WITH AB 939. [THRESHOLDS U-6 AND U-7]***

***Impact Analysis:*** The proposed Spring Trails specific plan involves 307 residential units that would generate solid waste to be disposed at Mid-Valley and/or San Timoteo landfills. The solid waste generated by each

residential unit can be estimated at 12.23 pounds of household waste per dwelling unit per day (Los Angeles County CEQA Threshold Guidelines). Based on this estimation, the proposed project would generate approximately 1,370,433 lbs/year (685 tons of solid waste per year, or 1.88 tons per day).

San Timoteo Landfill can receive a maximum of 1,000 tons per day until 2016. Since this closure date is not long after the buildout of the proposed project, the majority of the waste from the project would go to the Mid-Valley landfill, which has a closure date of 2033. The Mid-Valley Landfill can receive up to 7,500 tons of waste per day, and the average daily waste flow is 2,790 tons. The daily wasteflow plus the wasteflow of the proposed project totals 2,791.88 tons per day, which would be under the permitted daily capacity of the landfill.

The County and City of San Bernardino have recycling programs and incentives to reduce the amount of solid waste being transported to landfills. The waste reduction and pollution prevention programs of the City help both residents and businesses reduce waste and find recycling solutions. The City offers pick-up services for waste, green waste, and recycling for residents and businesses (CalRecycle 2009a). Impacts related to solid waste generation would be less than significant.

**Regulatory Compliance**

As shown on Table 5.15-16, the City of San Bernardino was in compliance with AB 939 in 2005 and 2006 based on the 50 percent waste diversion rate. In 2007 and 2008, San Bernardino did not meet the per capita disposal rate targets, but these numbers do not necessarily indicate noncompliance (see Table 5.15-17). The figures must be reviewed and approved by the board before they are used to determine the City's compliance with AB 939 (and SB 1016). These figures have not yet been approved by the board and the effect Spring Trails would have on the City's ability to meet its diversion targets is speculative. In worse-case conditions, the project would decrease the amount of waste being diverted from landfills and lessen the City's likelihood of compliance with AB 939.

Spring Trails does not offer any additional incentives to reduce the amount of waste being sent to landfills during construction or operation. Residents living in Spring Trails would participate in City-sponsored waste and recycling collection programs. Residential wasteflow generated during the operation of the project would have to be incorporated into the City's calculations on how to meet the 50 percent diversion goal. Although it would increase the amount of waste that would need to be disposed of by the City, this increase is not expected to cause significant impacts.

Construction material waste must also be reported to CalRecycle to indicate compliance with AB 939. Spring Trails does not have any steps for reducing construction material waste. The construction material would also need to be incorporated into the City's calculations to meet the 50 percent diversion goal. Since there would not be demolition of existing structures involved with the construction activities, there would not be a substantial amount of waste to be discarded.

#### *5.15.3.4 Cumulative Impacts*

Solid waste planning in San Bernardino County is guided by the San Bernardino County Solid Waste Management Plan, which directs the actions of the San Bernardino County Solid Waste Advisory Committee (San Bernardino 2005). The City of San Bernardino has a representative on this committee. The need for any additional landfills or transfer stations in the future must be incorporated into the solid waste management plan.

The EIR for the San Bernardino General Plan Update estimates that, at buildout, the City would be generating 2,628 tons of solid waste per day (after diversion). The Mid-Valley landfill can receive up to 7,500 tons of solid waste per day through its closure date in 2033. Over 70 jurisdictions send solid waste to this landfill, and the total daily disposal averages 2,790 tons. Between 2005 and 2007, total tons disposed per year decreased from 855,135 to 762,729 tons. When the proposed project disposal rate (1.89 tons per day) is included with the buildout disposal rate for the City (2,628 tons per day), the total is 2,629.89 tons per day, which is more than the current daily average for the landfill but less than the maximum capacity. The proposed project would not significantly contribute to the projected solid waste flow from the City of San Bernardino or to the maximum daily permitted disposal rate for the Mid-Valley landfill.

The above analysis of cumulative impacts to solid waste services is applicable to both the preferred development plan and the alternative (overhead electric lines) development plan.

#### *5.15.3.5 Regulations and Standards Conditions*

**City**

- City of San Bernardino Municipal Code, Chapter 8.24, Refuse and Solid Waste

**State**

- California Assembly Bill 939
- California Assembly Bill 75
- California Code Title 14 Division 7, Regulations of the California Integrated Waste Management Board

#### *5.15.3.6 Level of Significance Before Mitigation*

The Spring Trails project would have less than significant impacts on solid waste services.

#### *5.15.3.7 Mitigation Measures*

Impacts on solid waste services are less than significant; no mitigation measures are needed.

#### *5.15.3.8 Level of Significance After Mitigation*

No mitigation measures are identified, and impacts on solid waste services are less than significant.

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